

MODIS Atmosphere Group Summary

- Collection 5 Status
- Data Use/Validation Investigations
 - 20 presentations
 - New uses of MODIS data



Collection 5 Production Updates

- All Level-2 Software has been delivered to SDST/MODAPS
 - Summary of modifications and enhancements in collection 5 (mostly covered in posters)
 - ✓ Major enhancements in cloud mask (especially nighttime and polar regions)
 - ✓ Cloud product uses new ice crystal libraries, better phase determination, atmosphere/land surface reflectance product, improved atmospheric correction, uncertainties in cloud optical properties
 - ✓ Aerosol product uses new spatial variability to improve screening of heavy aerosol and clouds, better regional characterization of aerosol optical properties
 - ✓ Water vapor over high dry regions, like Tibet, improved in near-infrared algorithm
 - All level-2 products are currently in reprocessing for Terra
 - ✓ Over 1 year of products available thus far; distributed through AADS
- Level-3 Software delivery expected in late January
 - All level-3 production will be conducted for level-2 products produced thus far

Collection 5 Production Updates

- Once Level-3 data production catches up with level-2, collection 5 data will be distributed to Goddard DAAC as well as available through AADS
- Aqua reprocessing to commence around March 1
- Atmosphere collection 5 products completed for Terra and Aqua around August 31
- Collection 6 improvements planned and under development
 - Improvements in aerosol product for bright reflecting surfaces
 - ✓ Deep blue algorithm as well as further surface reflectance refinements

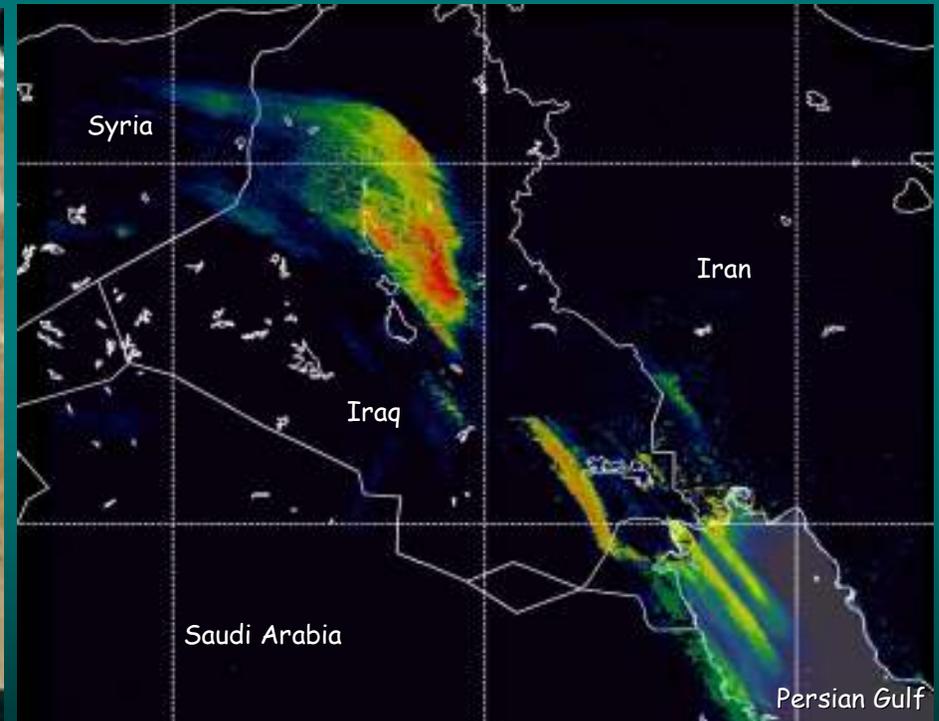
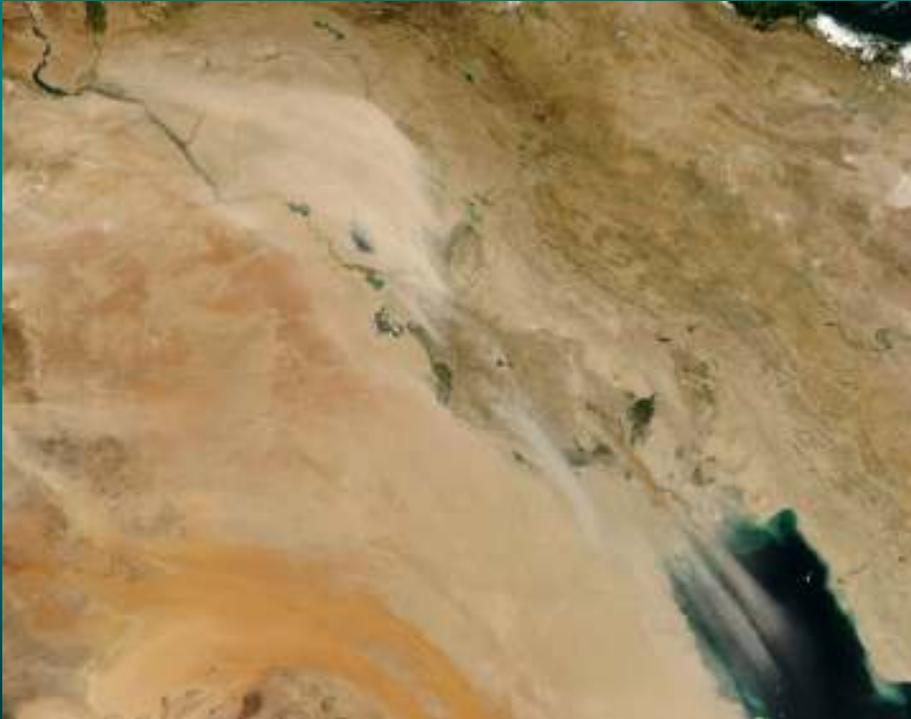
MODIS Deep Blue Algorithm over the Middle East

(N. C. Hsu , S. C. Tsay, M. D. King - NASA GSFC)

August 7, 2005

True Color Composite (0.65, 0.56, 0.47)

Aerosol Optical Thickness

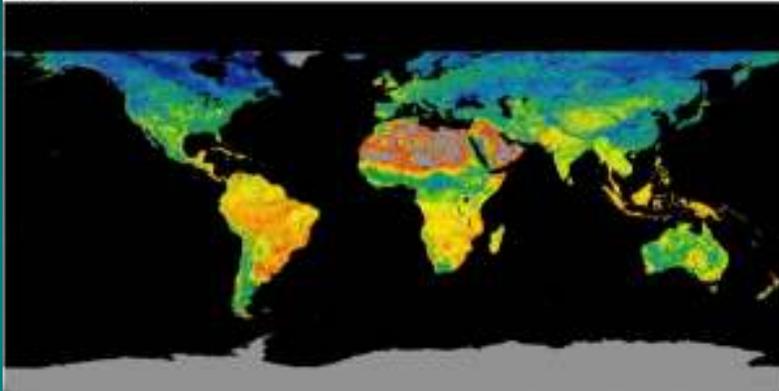


Aerosol Optical Thickness

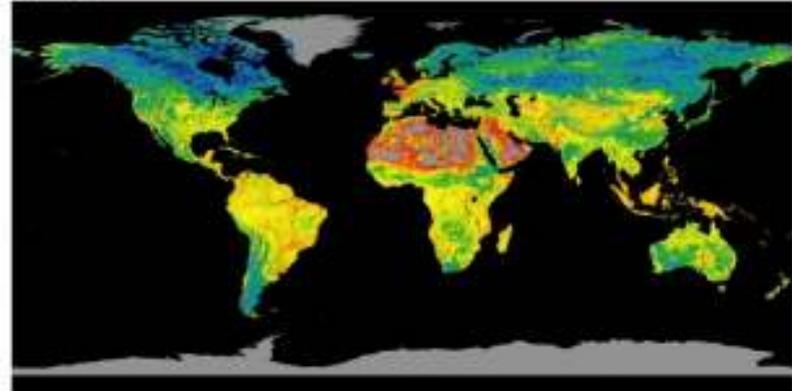
Spatially Complete Spectral Albedo Maps

(E. G. Moody, M. D. King, S. Platnick, C. B. Schaaf, F. Gao - GSFC, BU)

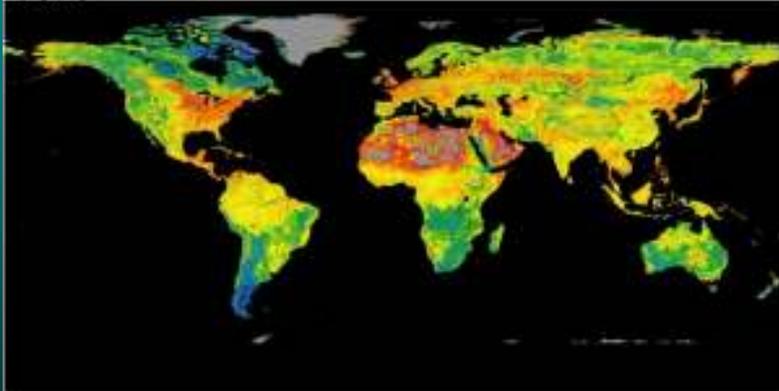
a) January 1-16, 2002



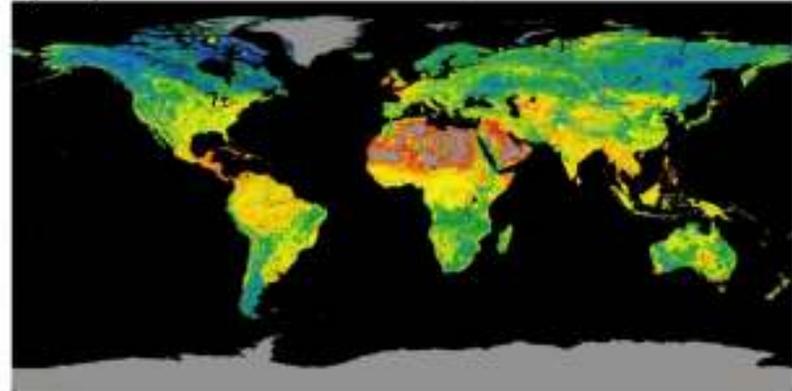
b) April 3-18, 2002



c) July 12-27, 2002



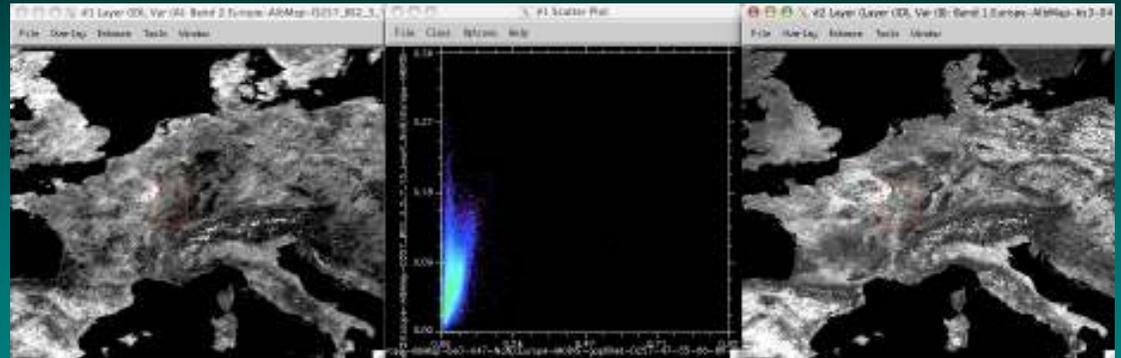
d) September 30-October 14, 2002



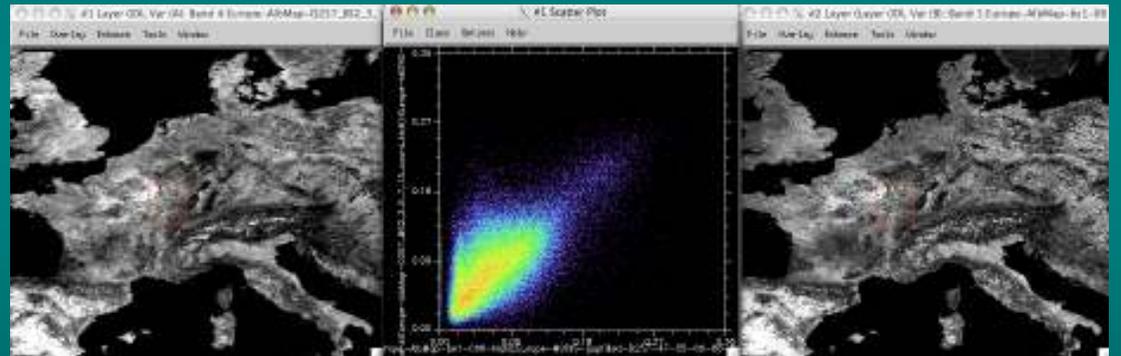
Moody et al. (2005)

MERIS vs MODIS gap-filled albedo for common bands (16-day, DoY=257-272) at 0.05° resolution

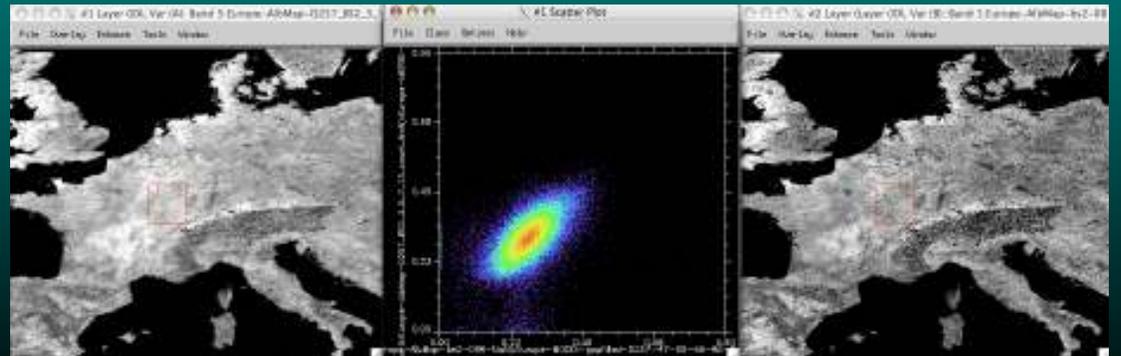
490
vs
470



665
vs
665



865
vs
869

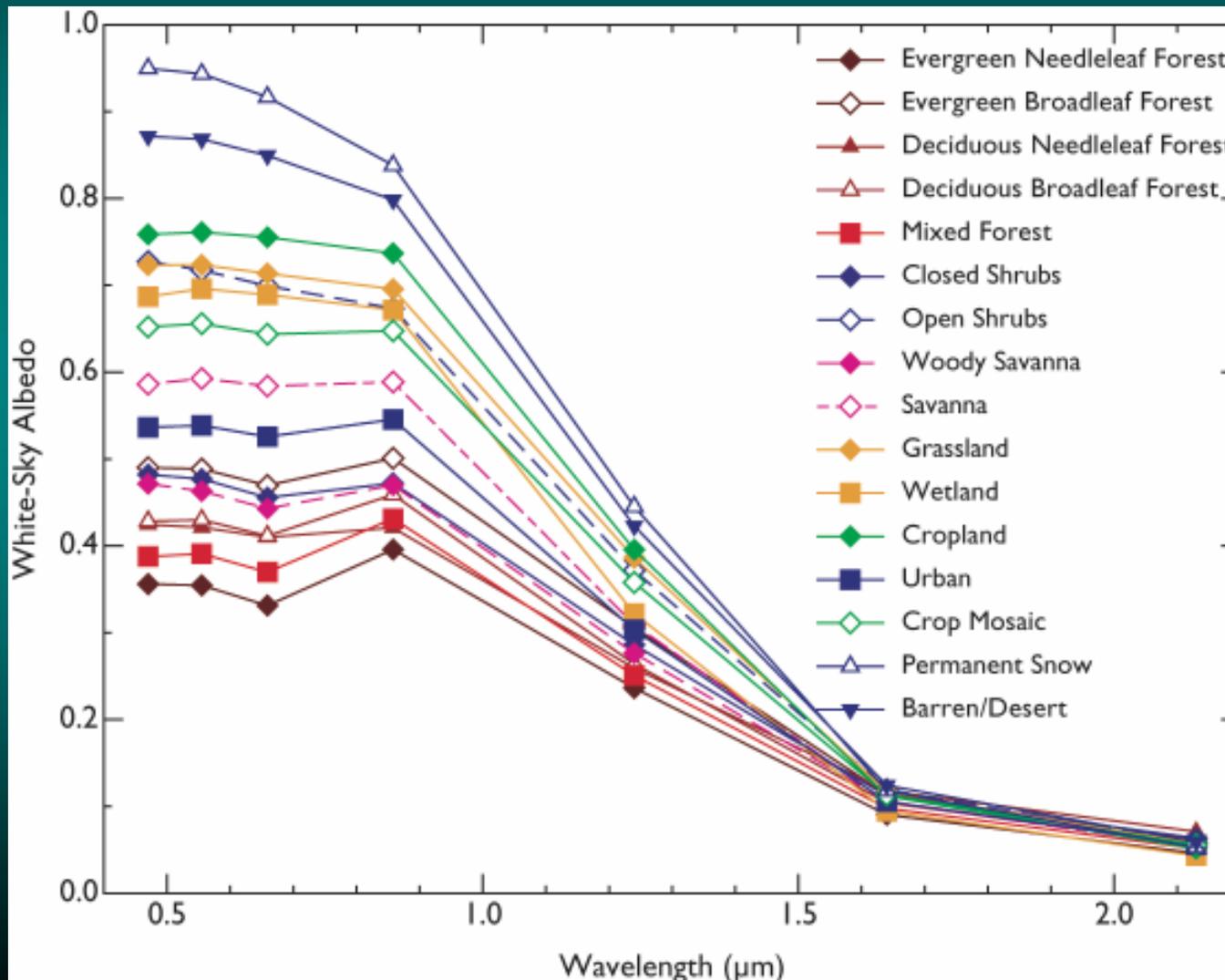


- 2D correlation improves with increasing wavelength

Northern Hemisphere Spectral Snow Albedo

(E. G. Moody, M. D. King, C. B. Schaaf, D. K. Hall - GSFC, BU)

2000-2004

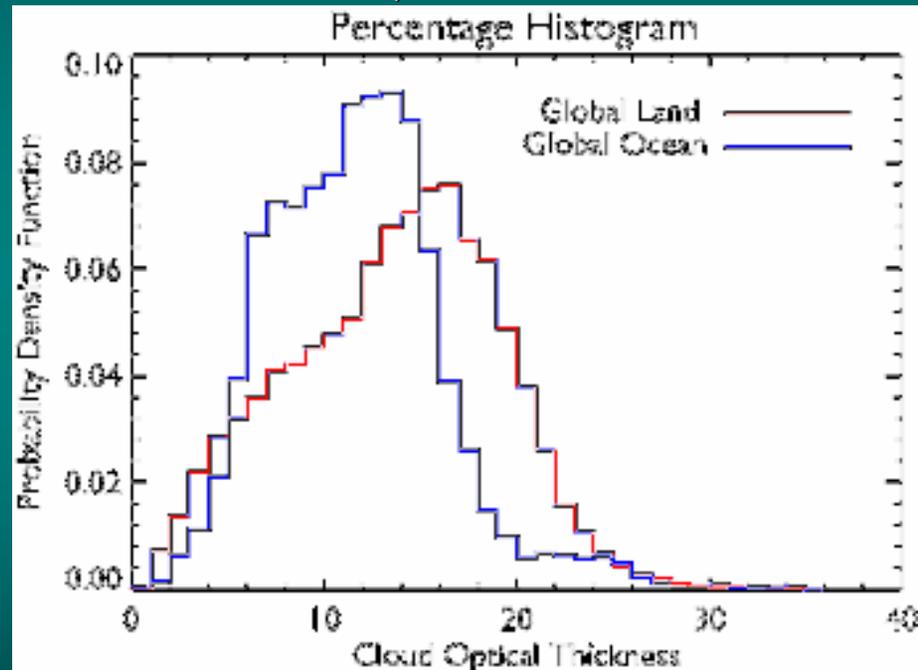


Probability Density of Atmospheric Properties

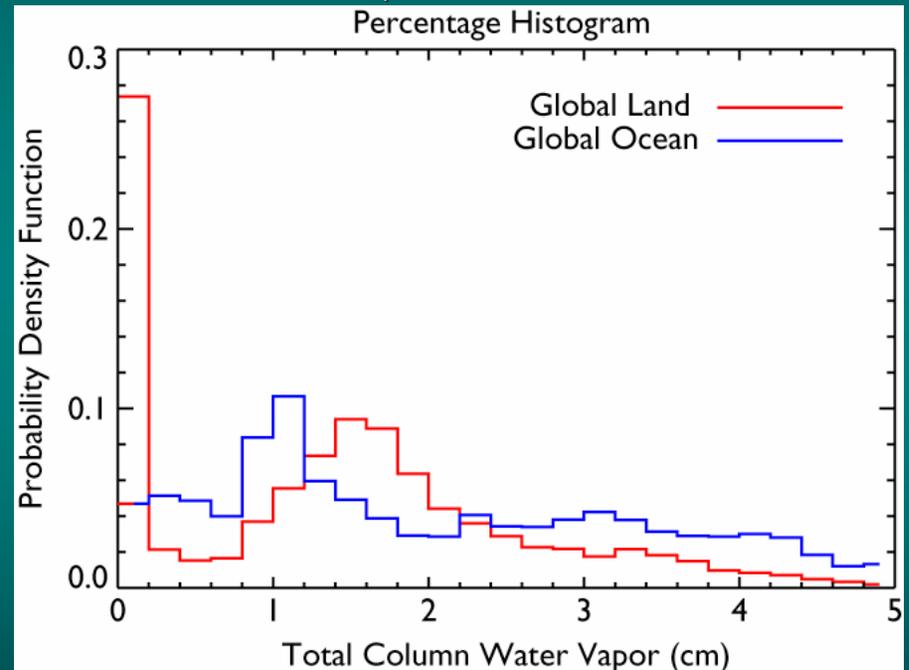
(M. Jin and M. D. King, Univ. Maryland, GSFC)

2000-2004

Cloud Optical Thickness



Precipitable Water



Miscellaneous Updates

- MODIS polar winds
 - Used operationally by NCEP, ECMWF, GMAO, ...
- Ghassem Asrar
 - Today is his last day at NASA
 - Moving to ARS as Deputy Administrator